Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, Installation Restoration Program (IRP) Site 1 Explosive Ordnance Disposal (EOD) Range, Marine Corps Air Station (MCAS), El Toro, California

Reviewer: John P. Christopher and Michael J. Wade, Human and Ecological Risk Division (HERD), Department of Toxic Substances Control, Letter dated December 27, 2000.

Comment No.	Section/ Page No.	Comment	Response
1.	Sec. 1.1, 3rd §, line 2, p. 1-1	"...human health and the environment;"	The text will be revised as suggested.
2.	Table 2-3, p. 2-15	**Perchlorate:** HERD has not reviewed any earlier documents indicating that perchlorate was detected at MCAS El Toro. In particular, the risk assessment for Operable Unit 1 (OU-1), basewide groundwater, contains no consideration of perchlorate. At the time OU-1 was investigated, detection limits for perchlorate in water were two to three orders of magnitude higher than today. The Navy should consider whether the risk assessment for OU-1 is still adequate, given these detections of perchlorate in the vicinity of Site 1, which lies upgradient from the main plume farther south and west.	Comment noted. A limited perchlorate investigation to evaluate the presence with wells on the station (BNI 1999c) was conducted. The results show that perchlorates concentrations not above the preliminary action levels of 18µg/L except at Site 1. A decision to reevaluate the risk for OU-1 will be made after the Stationwide perchlorate investigation planned for later this year is completed.
3.	Table 3-1, p. 3-9	**Chemical-Specific Values "To Be Considered":** This table does not contain any of the toxicity criteria on which risk-based cleanup goals will be derived for Site 1. Therefore, this table should include California EPA's Toxicity Criteria Databaseand USEPA's Integrated Risk Information System (IRIS). These databases may be accessed on line at, respectively, http://www.oehha.ca.gov/risk/chemicalDB/index.asp and http://www.epa.gov/iris/subst/index.html.	The suggested annotations will be made to this table.

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4.	Sec. 3.3.3, p. 3-11	**Comparison to Industrial Risk-Based Criteria:** Because the re-use of Site 1 is identified as an EOD range, we concur with the Navy's choice to base risk management decisions at this site primarily on comparisons to risk-based criteria derived from an industrial exposure setting, such as the commercial/industrial PRGs from USEPA Region 9. Because the Navy cannot fully control future re-uses of Site 1, we strongly urge that additional comparisons be made to risk-based criteria based on a residential setting, such as USEPA Region 9's residential PRGs. These comparisons need not be featured in the report, but they should be included for completeness, in case any risk-based restriction of future uses is decided upon.	Both residential and industrial land uses will be evaluated to ensure flexibility in risk management decisions. As suggested, we will focus on the industrial land use but will also provide an evaluation of the residential land use scenario in the report.

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Comment No.	Section/ Page No.	Comment	Response
5.	Sec. 3.3.3 *et al.*, pp.3-11 ff.	**Soil Screeniing Levels**: We do not recommend the use of USEPA Soil Screening Levels for screening risk assessment. We do recommend using USEPA Region 9 PRGs within the framework of the *Preliminary Endangerment Assessment Guidance Manual* (DTSC, 1994). Guidance for using PRGs in screening risk assessment at Federal facilitiesis outlined in a memorandum dated 28 October 1994 (attached). In general, we do not permit screening chemicals of potential concern (COPC) against multiple criteria, as the Navy proposes in this section and in Section 3.3.5. Screening risk assessments identify sites where further analysis or investigation should take place. Screening risk assessments are not to be used for eliminating detected chemicals as COPC. DTSC allows elimination of inorganic chemicals within the range of ambient conditions. All other detected chemicals must be included in the risk assessment. We recognize that USEPA Soil Screening Levels include considerations of protecting against migration of contaminants to groundwater. We believe that the Navy's plans for characterizing Site 1 will be generate adequate data for determining if contamination in the upper 10 ft of soil presents potential threats to groundwater.	The work plan has been revised to state that EPA Region 9 PRGs (including California modified values) will be used to evaluate the potential exposure to the soil pathway, while the EPA Region 9 SSLs will be used to evaluate the potential groundwater pathway. We recognize that screening risk assessments are frequently used to identify sites that require further evaluation. However, the approach proposed compares detected concentrations to PRGs to assess the magnitude of the contamination, and then uses the PRG table to backcalculate cumulative cancer risk or non-cancer hazard. To that extent, all detected chemicals will be included and evaluated in the risk assessment.
6.	Sec. 3.3.5, p. 3-15	**Chemicals with No Published Criteria**: The screening risk assessment should include estimates of the toxic effects of exposure to all detected chemicals. If a detected chemical has no published toxicity criterion, the Navy should contact toxicologists of DTSC and USEPA Region 9 to agree on a suitable strategy for assessment. Oftentimes, we have decided on surrogate chemicals, similar in structure and/or toxicity. We have used this procedure at several other bases where breakdown products of nitroaromatic explosive materials were detected.	We will estimate cumulative cancer risk and non-cancer hazard assuming exposure to all detected chemicals and will thus provide an estimate of the potential toxic effects associated with exposure to these chemicals. For any detected compound that has no published toxicity parameters, surrogate compounds will be proposed and selected in consultation with EPA Region 9 and DTSC toxicologists.

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Reviewer: Ron Okuda and Joe Hwong, Geological Services Unit (GSU), Department of Toxic Substances Control, Letter Dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
1.	Section 2.1, page 2-1	The report states that no ponding or accumulation contributing to surface water flow has occurred during recent times. GSU recommends that the report include the time period in which no ponding of water occurred instead of "recent times". It is GSU's recollection that the retention pond was not visible from the main road or area where EOD activities primarily took place and therefore was not inspected on a regular basis. It is possible that the retention pond still is holds water during rainy periods and supports wildlife or a vernal pool community.	A hydrological assessment was conducted to evaluate the accumulation of water in the pond during a 100 year storm. The results indicate that ponding can be expected but no overflow will occur that will contribute to runoff from the site. This pond was designated as a vernal pool during the Environmental Impact Study (EIS); sampling conducted in the pool detected the Riverside Fairy Shrimp, which is listed as a federally endangered species. The work plan has been revised to include evaluation of the surface water pathway.
2.	Section 2.5.2, page 2-9	Hydraulic gradient is calculated by measuring the scale distance between equipotential lines along a groundwater flow line that crosses the site, and dividing that value into the calculated change in head across the same distance (H_2-H_1) $\frac{(H_2-H_1)}{L} = \frac{H}{L}$ In the report, it appears that the hydraulic gradient was calculated using the distance between groundwater monitoring wells that are not parallel to the flow line. For example, the report states that the hydraulic gradient for wells 01_MW207, 01_DGM57, and 18BGMW24 is 0.008 feet per foot towards the west. Figure 2-4 indicates that these wells are located approximately on the same equipotential line and almost perpendicular to the estimated groundwater flow direction. The report requires further clarification and revision on the method used to calculate hydraulic gradient (and average groundwater velocity). As written, the report significantly underestimates the hydraulic gradient and average groundwater velocity.	The text has been revised to reflect minimum, maximum, and average gradient across Site 1. The hydraulic gradient has been re-calculated based on the change in hydraulic head along a flow path using the indicated formula.

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Comment No.	Section/ Page No.	Comment	Response
3.	Section 2.5.2, page 2-9	In the upper northeast end of the Site 1, the groundwater flow, based on water level measurements from wells 01_MW01, 01_MW102, and 01_MW202 is to the west (Figure 2-4). The estimated groundwater flow direction (south-southwest) in the center portion of Site 1 is based on groundwater data from wells installed along the length of Site 1. GSU is concerned that groundwater may flow in a more westerly direction in the center portion of the Site. GSU would like to have groundwater level measurements collected from the northwest boundary of Site 1 to verify the groundwater flow direction. If groundwater flow in the vicinity of well 01_MW201 is actually to the west, perchlorate detected in well 01_MW201 may not intersect well 01_MW205 which is currently believed to be a downgradient well.	Water level data from wells located in the Northwest boundary would not add to the current understanding of groundwater flow direction in the center of the site. Based on the current conceptual site model and existing water level data for Site 1, the general groundwater flow direction appears to be to the south-southwest, which is consistent with the surface topography. In addition, the RI Work Plan has been revised to include groundwater sampling as part of Tier 1 activities. Results from this sampling event along with soil sampling results from Tier 1 and 2 will be used to optimize placement of additional wells including cross-gradient wells.
4.	Section 2.6.2, Page 2-10	Surface Soil (0-1feet bgs), Phase I RI: This section discusses the analytical results of four shallow soil samples collected during the Phase I RI. The sample locations are shown on Figure 2-1. GSU recommends that the report discuss the rationale for choosing those sample locations. The four sample locations do not appear to be in areas where burial of waste from EOD activities occurred although they may have been impacted by projectile fragments or dust particles from explosives. 01UGS. 01_GN1, and 01_GN3 are on the upper slopes of Site 1 and 01_GN2 appears to be located along a road but on the opposite side that EOD activities took place.	During Phase I RI soil sampling, Site 1 was considered as one statistical stratum. The sampling design was developed for the entire range using a random sampling approach (Jacobs 1993a). This approach was based on evidence from historical aerial photographs and geophysical data indicating that EOD activities took place throughout the range and the knowledge that soils were being constantly mixed around the site due to frequent plowing. The collection of shallow soil data included one upgradient location and three locations randomly distributed within the EOD range. The text has been revised to include this additional information.

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Comment No.	Section/ Page No.	Comment	Response
5.	Section 2.6.2, Page 2-13	Surface Soil (0-1 feet bgs), Perchlorate Verification Study, Page 2-13 The report states that perchlorate was detected in one soil sample at a concentration of 320 µg/kg however the sample location was not specified. The report references Appendix B for laboratory results but the sample analysis for perchlorate is missing.	Specifics on the perchlorate results and sampling location were presented in the Draft Perchlorate Technical Memorandum (Earth Tech 2000a). However, the work plan has been revised to include specific perchlorate sampling results and locations.
6.	Section 2.6.5, Page 2-15	Groundwater: GSU is concerned that a data gap exist in the depiction of groundwater flow direction beneath Site 1. Site 1 is shaped like a trough trending northeast to southwest. Except for wells 01_MW102 and 01_MW207, the groundwater monitoring wells are installed along the longitudinal axis of Site 1 (Figure 2-1). The groundwater flow direction is shown as flowing south-southwest based on the line of wells. GSU believes that groundwater in the central portion of Site 1 may flow to the west and southwest. GSU recommends that a well be installed to the west of wells 01_MW205 or 01_MW206 to verify the groundwater flow direction and determine whether well 01_MW205 is actually downgradient to well 01_MW201. GSU also recommends that groundwater samples be collected in the vicinity of 01_MW201 to determine the extent of groundwater contamination that exceeds the California DHS Action Level for perchlorate.	Six additional monitoring wells were installed during the Perchlorate Verification Study to supplement data for defining the extent of perchlorate in groundwater and to determine the magnitude and direction of groundwater gradient. Well locations were based on the conceptual model for groundwater flow at the site. Groundwater flow direction in the shallow aquifer is consistent with site topography and is generally towards the south-southwest. Groundwater samples will be collected as part of Tier 1 activities. The intent is to optimize placement based on soil contamination identified during Tier 1 and 2 sampling.
7.	Section 2.6.5, Page 2-15	Item number 3 under Perchlorate Verification Study As noted in the previous comment, the hydraulic gradient and groundwater velocity was not accurately calculated.	The text has been revised to reflect minimum, maximum, and average gradient across Site 1. The hydraulic gradient has been re-calculated based on the change in hydraulic head along a flow path using the indicated formula.

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Comment No.	Section/ Page No.	Comment	Response
8.	Section 3.1.2, Page 3-1	During a site visit of Site 1, remember being told that water ponds in an area approximately 200 feet north of 01_MW202. I don't remember if it was year-round or seasonal. The source of water was either runoff or groundwater surfacing due to the shallow bedrock. This area of ponded water is within Site 1 and the EOD Range Boundary shown on Figure 2-1. GSU recommends that the Marines determine whether the area is a seasonal wetlands that supports wildlife.	A small impoundment exists near the northern end of Site 1. This retention pond was originally constructed to contain storm water runoff. In addition sampling performed in support of the Draft EIS indicated the Riverside fairy shrimp was present. A habitat assessment is currently underway, which will also evaluate if the watershed for this pond will have potential wetland designation.
9.	Section 3.3.1, Page 3-10	GSU believes that additional investigation is necessary to define extent of groundwater contamination that exceeds the California DHS Action Level for perchlorate. The report states that the perchlorate contamination has been defined based on one groundwater monitoring well (01_MW201). The perchlorate detected in well 01_MW201 could be water collected from the center or fringe of the plume. The size of the plume and mass of perchlorate in the groundwater is unknown. Following the decision logic that is proposed for soil investigation, further investigation is warranted to define the extent of the "hot spot" groundwater contamination. Additional groundwater investigation would be prudent to make a better estimate of the concentration and extent of perchlorate for risk predictions and remedial planning purposes.	Six additional monitoring wells were installed during the Perchlorate Verification Study to supplement data for defining the extent of perchlorate in groundwater. Based on perchlorate analysis data collected from wells located upgradient and downgradient of 01_MW201, and the conceptual model for the site, the detection of perchlorate in groundwater is localized. The RI Work Plan has been revised to include groundwater sampling as part of Tier 1 activities. Results from this sampling event along with soil sampling results from Tier 1 and 2 will be used to optimize placement of additional wells including cross-gradient wells.

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Comment No.	Section/ Page No.	Comment	Response
10.	Section 3.3.7.1, Page 3-17	Tier 1: The soil sampling proposal is a systematic pattern in which soil samples are collected from two depths approximately1.5 and 5 feet below ground surface from 25 locations per study area. The sample locations will be at the center of 170 by 170 feet grid blocks. Grid blocks that contain a previous soil sampling location will be excluded from this sampling event. In addition to the systematic sampling pattern GSU strongly recommends that soil samples be collected at the geophysical anomaly locations with samples targeted at the bottom of the former trench excavations. The plotted geophysical anomalies (Figure 2-2) show lineations which may indicate former trenches used for waste disposal. Each lineation may also contain varying amounts of waste and constituents of concern depending on the time period that the material was buried. The previous sampling of anomalies involved the collection soil samples at depths between 1 and 5 feet below ground surface. The report does not indicate whether the samples were collected at the bottom of the former trenches. Samples collected at shallower depths may have been waste, non-contaminated backfill soil, or a mixture. GSU recommends that the depth of the former trenches be determined before the proposed sampling event to help develop the sampling strategy. At each sampling location, one sample should be collected at 0.5-1.0 feet below ground surface and a deeper sample collected from the bottom of the former trench. Three (or more) samples per location may be necessary if the former trenches are greater than 5 feet in depth. The bottom of the trenches can be determined by trenching perpendicular to the lineations or by collecting and logging soil cores.	Existing data at these locations will be combined with RI Tier 1 data to determine the presence of any hot spots that may be associated with the observed geophysical anomalies. The bottom of the former trenches that were used for EOD training cannot be established conclusively by geophysical surveys. Therefore, during the Tier 2 activities trenching through the anomalies will be conducted. During this trenching, every attempt to confirm the trench bottoms will be made. If field observations confirm the bottom of the trenches, soil samples will be collected at those depths. Samples to characterize any residuals (resulting from EOD training activities) within each trench/sampling location will also be collected.

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Comment No.	Section/ Page No.	Comment	Response
11.	Section 4.2.8, Table 4-3, Page 4-6	The holding time between sample collection and sample extraction at the laboratory for soil samples collected with Encore-type samplers is 48 hours, not 72 hours. Please revise the document and ensure that the field sampling staff and laboratory are aware of the holding time. The holding time before extraction can be extended if the samples are frozen immediately after collection however the Marines should consult with DTSC prior to implementing this procedure.	The holding time for unfrozen Encore type samples has been changed to 48 hours. In addition, for this investigation, the Navy proposes a holding time of 7 days for frozen Encore type samples in accordance with "Regional Interim Policy for Determination of Volatile Organic Compound (VOC) Concentrations in Soil and Solid Matrices" (U.S. EPA, June 23, 1999).
12.	Figure 2-3, Page 2-7	Conceptual Site Geology Site 1 _ EOD Range Wells locations that are not on the traverse line must be listed as projected data on the cross-section. Geologic information depicted on the cross-section may be skewed because boring log data from wells over 100 feet away from the traverse line were apparently used to prepare the cross sections.	Figure 2-3 has been revised; the cross-sections do not have any projected lithologic data.
13.	Figure 2-4, Page 2-11	Groundwater Elevation Contours, Site 1 – EOD Range There are no groundwater elevation measurements in the northwest portion of Site 1 and southeast of Site 1 to determine groundwater elevations. Equipotential lines that extend farther than 250 feet away from a monitoring well must be drawn as dashed lines to indicate that the groundwater elevations are estimated.	Figure 2-4 has been revised to show estimated groundwater elevation contours using dashed lines.
14.	Figure 2-4, Page 2-11	The trace of the suspected fault shown in Figure 2-3 should also be shown on the site plan map (Figure 2-1).	Figure 2-1 with the locations of sections A-A' and B-B' has been revised to show the plan view of the suspected fault shown on Figure 2-3.

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Reviewer: Tayseer Mahmoud, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
		Initial Completeness Review of Closure Plan OB/OD Unit at Marine Corps Air Station El Toro (MCAS El Toro) Dated September 2000 Marine Corps Air Station El Toro submitted a draft Remedial Investigation (RI) Work Plan dated September 2000 to the Department of Toxic Substances Control, Office of Military Facilities, for IRP Site 1, Explosive Ordnance Disposal (EOD) Range. A RCRA OB/OD unit is located within Site 1. Hazardous Waste Management staff conducted an initial completeness review of the draft RI Work Plan to find out if the document also satisfies the requirements of RCRA closure plan for OB/OD unit. The following are comments on the RCRA closure components of the document:	
1.		MCAS El Toro submitted a Part A application for the OB/OD unit in June 1988. The Part A depicts a small area for the OB/OD unit within the Explosive Ordnance Disposal Range (EOD) Range, Site 1. Please provide a description of the OB/OD unit, dimensions, and locations of the burn pits.	EOD training activities took place in both the Northern and Southern EOD Ranges (and not restricted just to the small area depicted in the Part A application). A description of the training for EOD and detonation of munitions is presented in Sections 2.2; the dimensions and locations of the ranges where such training and detonation activities took place is presented in Section 2.1 and Figure 2-1.
2.		The scale of the topographic map, Figure 2-1, is not acceptable. Please provide a map showing a distance of 200 feet around the OB/OD unit at a scale of 1 inch equal to not more than 200 feet. Elevation contours shall be shown on the map. The contour interval shall be sufficient to clearly show the pattern of surface water flow in the vicinity of the OB/OD unit.	No OB/OD unit was operated at Site 1. A map with a scale of 1 inch equal to 200 feet has been provided for the Northern and Southern EOD Ranges.
3.		Provide the weather and climate conditions for the site.	The work plan has been revised to provide this information.
4.		The document describes the general use of the EOD Range. Please provide a detailed description/capacities/quantities/types of open burning/open detonation activities at the OB/OD unit.	No OB/OD unit was operated at Site 1. As part of the Range Rule Risk Methodology (R3M) currently underway, evaluation of the description/capacities/quantities/ types of munitions that were used during EOD training will be performed and included in the RI report.

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Comment No.	Section/ Page No.	Comment	Response
5.		Describe types of detection or monitoring used at the OB/OD unit.	No OB/OD unit was or is operating at Site 1. However, groundwater monitoring at Site 1 will be conducted as part of Tier 1 of the RI. In addition, selected groundwater wells will continue to be monitored as part of the long term groundwater monitoring plan.
6.		Provide information regarding the decontamination procedures and disposition of contaminated containment systems for the OB/OD unit.	No OB/OD unit was or is operating at Site 1. Detonation of munitions during EOD training activities took place in trenches and pits, which served as containment systems. No engineered containment systems were used since detonation was carried out below the ground surface.
7.		Provide the approximate quantities of contaminated soils, structures, and equipment that need to be decontaminated on-site or sent off-site for treatment or disposal.	The RI report will estimate the quantity of contaminated soil, if any, that is present at Site 1 due to EOD training. Records that were maintained of EOD training activities do not indicate that structures or equipment that require decontamination are present.
8.		Provide the name of the off-site treatment/disposal facility and distance from MCAS El Toro to the off-site management facility.	No off-site treatment/disposal or management facility was used.
9.		Provide information regarding the land disposal restriction (LDR) for contaminated, soils, structures, equipment, and waste generated during closure activities of the OB/OD unit.	No OB/OD unit was operated at Site 1. The RI as part of the CERCLA process will characterize contaminated soils and waste, if encountered. LDRs will be considered as potential ARARs during the evaluation of response actions.

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Comment No.	Section/ Page No.	Comment	Response
10.		Identify the units, structures, observation posts, cardboard sheets, metal blasting cans, etc., that were impacted by the OB/OD activities and methods of decontamination that will be used to clean the units.	The EOD Range was not used as an OB/OD unit. Therefore, decontamination of structures typically associated with an OB/OD unit does not apply. However, if any UXO or related items are uncovered during the RI and UXO Evaluation, they will be addressed as part of the CERCLA process.
11.		The document describes the sampling locations for the EOD Range. Please provide specific information for the OB/OD unit.	No OB/OD unit was operated at Site 1. Information regarding sampling for the area depicted in the Part A application is can be found in the Sampling Design (Section 3.3.7 and Figure 3-4).
12.		Provide a comparison to show that the proposed test methods are adequate to detect chemicals of concern expected at the OB/OD unit.	The proposed test methods cover a comprehensive list of chemicals that would be expected at an EOD Range, or for that matter an OB/OD unit. The adequacy of the test methods is discussed in the Quality Assurance Project Plan (QAPP) portion of the Work Plan (Section 5.0). However, any tests or alternate methods prevailing in the industry and not currently included in this Work Plan will be considered if the reviewing agency could specifically indicate them.

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Comment No.	Section/ Page No.	Comment	Response
13.		No cleanup levels are provided in the closure plan. Please provide the proposed cleanup levels for soil, sediment, surface water, groundwater, etc. The cleanup may be to health-based levels or may be to background levels or to the detection limit, as appropriate. Also, the cleanup levels should protect ecological receptors at the site. Guidance for both human health and ecological risk assessment can be found on the Human and Ecological Risk Division (HERD) web site at WWW.cwo.com/~herd1. CalTOX (available at http://www.cwo.com/~herd1/) can be used to generate health-based contaminant concentrations in soil (residential and industrial), which can be used for risk screening purposes, as possible triggers for further action and as starting points for determining site-specific cleanup levels. Procedures for estimating carcinogenic risks and non-carcinogenic hazards are described in "Supplemental Guidance for Human Health Multimedia Risk Assessment for Hazardous Waste Sites and Permitted Facilities (DTSC, 1997; http://cwo.com/~herd1/ftp/backgrn.pdf." To evaluate the risk from lead in soil, Leadspread 7 (http://www.cwo.com/~herd1/). Model which takes into consideration lead from all sources and pathways should be used.	Department of the Navy (DON) will follow the guidance and procedures as per the sources indicated in this comment. However, as indicated in Table A-2 of the Work Plan, cleanup levels will be developed following completion of the remedial investigation. The levels will be established by comparing contaminant levels in each media to acceptable exposure levels, which will be determined on the basis of the results of the baseline risk assessment. A request for ARARs from DTSC and other regulatory agencies will be made at that time.
14.		Provide an estimate of contaminated soil. Also, assume contaminated soil will be encountered based on the activites conducted at the site and expected constituents of concern, provide the health and safety procedures and removal/cleanup procedures. This should include: Ordnance detection instruments; procedures for detonation of live UXO items found during the detection and removal process; description of soil excavation equipment; surface area; depth of excavation; equipment staging area; volume of contaminated soil; provisions to minimize dust generation; decontamination procedures; and on-site and off-site treatment.	An estimate of the contaminated soil will be presented in the RI Report, based on the results of the RI. As presented in Tables A-1 and A-2 of the Work Plan, following the RI an evaluation of response actions will be conducted and discussed in the Feasibility Study report. Once a response action is selected and documented in the Record of Decision, site specific plans addressing the implementation of the response action will be prepared in accordance with the CERCLA process.

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Comment No.	Section/ Page No.	Comment	Response
15.		Provide detailed activities of the closure plan and cost estimate for each closure activity.	As indicated in Table A-2 of the Work Plan, cost estimates will be presented in the Feasibility Study/Record of Decision documents.
16.		Provide the closure implementation schedule and time to complete closure. The regulations require the completion of closure within 180 days after approval of the CP.	The implementation schedule for the RI activities is presented in Figure 5-2. As per Table A-2, this activity is comparable to the Closure Plan and its Implementation. The projected schedule follows the CERCLA documentation and review process.
17.		Provide revisions in the CP that the approved CP will be maintained at the facility until the Closure Certification Report is approved by DTSC. Also, provide a statement that the Closure Certification Report will be submitted to DTSC within 60 days of completion of closure.	CERCLA documents will be submitted in accordance with and as per the schedule in the Federal Facilities Agreement (FFA). Table A-1 lists the comparable CERCLA document for the Closure Certification Report. These documents will be maintained in the Administrative Records at the (former) MCAS El Toro. The RI Work Plan has been revised to indicate this.
18.		Approval of the CP is subject to public review. Please send us a comprehensive facility mailing list for residents, schools, and businesses near the site. The list should also include the elected officials for your area. Please send us a hard copy and an electronic copy of the mailing list.	The Proposed Plan that will be prepared as part of the CERCLA process will undergo public review as per National Contingency Plan (NCP) regulations. A mailing list for the Proposed Plan will be developed at the time of submittal of this document and will be provided.

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Reviewer: Tayseer Mahmoud, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
19.		The CP approval is subject to California Environmental Quality Act (CEQA). Section 66265.112(b)(8) requires the facility to submit all information necessary to enable the Department to prepare an initial study. We are requesting your cooperation in providing information to aide DTSC in the preparation of CEQA documents because the Closure Plan does not have enough information to prepare adequate CEQA documents. The project description, decontamination procedures, closure plan activities and proposed cleanup levels impact on earth, air quality, surface and groundwater, plant life, animal life, future land use, risk of upset, transportation/circulation, public service, utilities, noise, public health impacts on surrounding communities, and cultural/Paleontological resources are needed information to prepare the CEQA documents.	DON will cooperate by providing any information generated during the CERCLA response activities.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, Installation Restoration Program (IRP) Site 1 Explosive Ordnance Disposal (EOD) Range, Marine Corps Air Station (MCAS), El Toro, California, September 2000.

Reviewer: Triss Chesney, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
1.	Section 1.1, 2nd para	Purpose and Scope of the Work Plan: The second paragraph states "The work plan complies with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in Title 40 of the Code of Federal Regulations (CFR), Part 300." In accordance with the Federal Facility Agreement (FFA) for MCAS El Toro, this RI must also be conducted in accordance with applicable State law. As a result, add California Health and Safety Code Section 6.8 to this paragraph.	The work plan has been revised to state that this RI will be conducted in accordance with California Health and Safety Code Section 6.8.
2.	Section 2.4	Ongoing and Concurrent Work: The radiological survey that is planned for Site 1 as a result of the Historical Radiological Assessment should be included.	The work plan has been revised to include the radiological survey.
3.	Section 2.6.2	Surface Soil (0-1 feet bgs [below ground surface]), Phase I RI: This paragraph describes the four surface soil samples that were collected during the Phase I RI and states that they are shown on Figure 2-1. For clarification, list the location identification for these samples that are shown on Figure 2-1.	The identifications (01_UGS, 01_GN1, 01_GN2, and 01_GN3) has been provided in Section 2.6.2.
4.	Section 2.6.2	Surface Soil (0-1 feet bgs), Perchlorate verification Study: This paragraph describes three surface samples that were collected at topographic depressions during the Perchlorate verification Study. For clarification, list the location identification for these samples and reference that they are shown on Figure 2-2.	The text has been revised to include the sampling locations.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, Installation Restoration Program (IRP) Site 1 Explosive Ordnance Disposal (EOD) Range, Marine Corps Air Station (MCAS), El Toro, California, September 2000.

Reviewer: Triss Chesney, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
5.	Section 2.6.3	Shallow Soil (1-10 feet bgs), Perchlorate Verification Study: This section describes 28 soil samples that were collected at 14 anomalous locations identified by the geophysical survey. For clarification, list the location identification for these samples.	The text has been revised to include mention of these samples.
6.	Section 3.3.3	Decision Inputs: Number 1 in this section states, "Soil concentrations of analytes, which are expected to be characteristic of releases during EOD operations, will be used to determine COPCs [chemicals of potential concern]. The chemical groups of analytes are metals, general chemistry, explosives, VOCs [volatile organic compounds], SVOCs [semi-volatile organic compounds], dioxins, furans, and petroleum hydrocarbons". For consistency, each of the compounds or class of compounds identified with site activities in Section 2.2. EOD activities, should have a corresponding explanation in Section 3.3.3 for determining COPCs. For example, Section 2.2 – EOD Activities states, "In addition, there are unconfirmed reports that low-level radioactive material was disposed at the site." Clarify in the text why the chemical groups of analytes used to determine COPCs does not include radionuclides (e.g. IRP Site 1 is included in the basewide radiological survey).	Section 3.3.3 has been revised to include an explanation for the compounds/class of compounds identified in Section 2.2.
7.	Section 3.3.7.1	Tier 1: The last paragraph of this section states, "All samples collected during Tier 1 will be analyzed for metals, general chemistry, explosives, VOCs [volatile organic compounds], SVOCs [semi-volatile organic compounds], dioxins, furans, and petroleum hydrocarbons." Refer to comment Number ~~5~~ 6.	Section 3.3.7.1 has been revised.
8.	Section 3.3.7.2	Tier 2: The second paragraph describes trenching and sampling that will be conducted at each area of localized investigation. Clarify the proposed disposition of the excavated material.	The excavated material will be backfilled within the same trenches. Any UXO and related items will be handled in accordance with the UXO Evaluation Work Plan. Section 4.2.4 (under Field Methods and Procedures) has been revised to include this clarification.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, Installation Restoration Program (IRP) Site 1 Explosive Ordnance Disposal (EOD) Range, Marine Corps Air Station (MCAS), El Toro, California, September 2000.

Reviewer: Triss Chesney, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
9.	Section 3.3.7.3	Tier 3: The first paragraph states that for contamination greater than 10 feet bgs, "Soil boreholes will be advanced to a depth of approximately 50 feet bgs and sampled at 5-foot intervals." Clarify the depths between which Tier 3 samples will be collected.	Tier 3 samples will be collected at depths starting from 5 feet bgs up to the maximum depth of drilling, which is expected to be 50 feet bgs. The text has been revised to clarify accordingly.
10.	Section 4.2.6	Investigation-Derived Waste: The first paragraph states, " It is anticipated that the field investigation will generate nonhazardous wastes..." Include justification for this determination.	The anticipation is based on the preliminary soil sampling analytical results (conducted as part of the Perchlorate Verification Study). This justification has been included. However, it should be noted that IDW will be characterized as described in Section 4.2.6.
11.	Table 4-3 Table 4-4	Requirements for Soil Sample Preservation, Maximum Holding Time, and Containers and, Requirements for Groundwater Sample Preservation, Maximum Holding Time, and Containers: Include furans in these tables.	Tables 4-3 and 4-4 have been revised to include furans.
12.	Table 4-3 Table 4-4	Requirements for Soil Sample Preservation, Maximum Holding Time, and Containers and, Requirements for Groundwater Sample Preservation, Maximum Holding Time, and Containers: Verify holding times with the Third Edition of Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, prepared by the United States Environmental Protection Agency (SW-846). If holding times differ, provide an explanation. For example, in Tables 4-3 and 4-4, the maximum holding time for nitrate is identified as 14 days; however, SW-846 specifies a holding time of 48 hours for sample extraction and analysis.	Has been revised to be consistent with SW 846.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, Installation Restoration Program (IRP) Site 1 Explosive Ordnance Disposal (EOD) Range, Marine Corps Air Station (MCAS), El Toro, California, September 2000.

Reviewer: Triss Chesney, Department of Toxic Substances Control, Letter dated December 15, 2000.

Comment No.	Section/ Page No.	Comment	Response
13.	Section 5.2.1	Field Sampling Quality Assurance Measurements: In addition to trip blanks, temperature blanks, field duplicates, field blanks and equipment rinsate blanks as mentioned in this section, field split samples should be collected. Field split samples are samples split in the field and then sent to two different laboratories to be analyzed for the sample analytes. Significant differences between results indicate error in the overall measurement system.	Splitting soil samples in the field and comparing the results between different laboratories is generally not the most effective method for assessment of laboratory measurements systems. The approaches selected for this project are believed to be sufficient assurance of the quality of the measurement systems.
14.		Additional comments from the DTSC Geological Services Unit and Industrial Hygiene and Field Safety Section are also included. Comment from the DTSC Human and Ecological Risk Division will be forwarded under separate cover.	

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, IRP Site 1-Explosive Ordnance Disposal Range, Marine Corps Air Station, El Toro, California, September 2000

Reviewer: TechLaw, Inc. for U.S. EPA Region IX, Letter dated November 1, 2000

Comment No.	Section/ Page No.	Comment	Response
GENERAL COMMENTS			
1.		(A) The plan does not address the investigation and removal of potential unexploded ordinance (UXO) that may be present on the site. If this has been or will be described in another document, it should be referenced and a synopsis of the proposed actions should be provided in this plan. If the planning for UXO remediation is in the preliminary stage and no proposed actions have been developed, this should be indicated. If no investigation/removal of the UXO is planned, it should be so stated in the document. As currently written, the plan does not include the final disposition of the UXO that are present on the site. (B) Explosive Ordnance Disposal (EOD) Ranges invariably have ordnance items that are ejected from disposal detonations or burns and that do not function (kickouts). In some instances (depending on the shape and area of the range), some of these kickouts are thrown off of the range and onto the surrounding land. Since the EOD Range is approximately 1700 feet in length and less than 700 feet wide at its narrowest point, there is a definite likelihood that UXO are present on land outside the confines of the EOD Range as depicted on Figures 2-1 and 2-2 of the plan. This also has not been addressed in the plan. (C) Please revise the plan to include the process to be used for remediating the UXO hazard on Site 1 and any portion of the surrounding area that is contaminated with UXO. If the process has been, or will eventually be, detailed in another document, please identify that document in this plan. If no remediation of the UXO is planned, please explain.	(A) This Phase II RI Work Plan, as part of the CERCLA response, addresses the impact to the environment (surface and subsurface soil and groundwater, as will be indicated by exceedances of threshold levels for chemicals of potential concern) and consequent human health risk due to past EOD training. The Site 1 EOD Range is currently being evaluated using the Range Rule Risk Methodology (R3M). As part of this evaluation, an UXO Evaluation Work Plan is being developed. This plan will address the investigation and removal of potential UXO that may be present at Site 1 and will be conducted as a parallel investigative effort. The draft UXO Evaluation work plan will be issued in March 2001. If Ordnance/Explosive (OE) items are encountered during the field investigation activities they will be handled in accordance with an Appendix to the Health & Safety Plan. (The Appendix is being developed and will provide UXO avoidance support for sampling activities). (B) A survey of the areas around the EOD ranges will be conducted to evaluate kick-outs. The UXO Evaluation Work Plan will provide a detailed description of the kick-out evaluation. (C) If UXO sampling results indicate that remediation is required a plan would be developed at that time. The evaluation of alternatives will be in accordance with the R3M methodology and as such many factors including reuse will be considered. These alternatives will be evaluated and presented in the feasibility study.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, IRP Site 1-Explosive Ordnance Disposal Range, Marine Corps Air Station, El Toro, California, September 2000

Reviewer: TechLaw, Inc. for U.S. EPA Region IX, Letter dated November 1, 2000

Comment No.	Section/ Page No.	Comment	Response
2.		The EOD Range does not appear to meet the current Department of Defense explosives safety and siting criteria as provided in paragraphs C.2.4.6, C.2.5.2, and C.5.5.4 of DoD 6055.9-STD (DoD Ammunition and Explosives Safety Standards), July 1999. While the range may have been sited under previous versions of DoD 6055.9-STD and appropriate Navy and/or Marine Corps regulatory documents, and is currently considered to be "grand fathered," the transfer to another service or federal agency of a range that does not meet current safety standards is questionable. It is recognized that there also may be easements, waivers and exemptions that allow reduced separation distances for the range from the installation boundary. However, the propriety of a transfer under these conditions and its acceptance by the parties to the transfer and relevant approval authorities should be researched prior to finalizing a plan that is based on the viability of that transfer.	The current Community Reuse Plan identifies Site 1 to be transferred to the Department of Justice (DOJ). Accordingly, the explosives safety and siting criteria in the DOD Ammunition and Explosives Safety Standards does not apply towards this transfer. DOJ will be responsible for complying with applicable state and federal siting requirements.
3.		The Workplan should include a more detailed discussion of plans to assess the site geology and hydrogeology. This assessment should include an analysis of drilling logs to correlate stratigraphic units between soil borings; identify zones of potentially high hydraulic conductivity, any confining layers or aquitards; any unusual or unpredicted geologic features such as faults, facies changes, cross cutting structures, pinch outs etc; and petrographic features such as sorting, grain size distribution and cementation in significant formations. Please revise the RI Workplan to include additional procedures for characterization of the geology and hydrology.	Procedures for collecting, documenting, and verifying field data that are used in support of site geology and hydrogeology characterization are described in detail under approved CLEAN II Program Procedures. As indicated in Section 4.2.4, field personnel will identify the types of soil collected following CLEAN Standard Operating Procedure (SOP) 3 and Borehole Logging (BNI 1999d). These data will be used to correlate stratigraphic units across the site, which will ultimately be incorporated into the site conceptual model.

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Reviewer: TechLaw, Inc. for U.S. EPA Region IX, Letter dated November 1, 2000

Comment No.	Section/ Page No.	Comment	Response
4.		Volatile Organic Compounds (VOC's) contamination was found at the MCAS boundary in 1990. Site 1 includes the Northern boundary of MCAS, however, only the Northern EOD Range and Southern EOD Range, which do not include the boundary of the MCAS, are being investigated. If VOC's were found at a boundary of the MCAS, then other contaminants may also be present at boundary locations. The field sampling plan should indicate why the boundary in Site 1 in not being investigated.	Monitoring wells 01_MW101 and 01_MW102 are located within Site 1 at distances of approximately 200 and 30 feet from the boundary. No contamination has been evidenced in these wells. If contamination is encountered during groundwater monitoring at these wells, further investigation to delineate the extent of groundwater with respect to the station boundary will be conducted.
5.		The Quality Assurance Project Plan (QAPP) references the U.S. Navy Engineering Command, Southwest Division, Environmental Work Instruction (EWI) "Chemical Data Validation" in Section 5.0, Page 5-1, as the criteria being used for quality control (QC) samples. Quality control samples include: Method Blanks, Laboratory Control Samples, Matrix Spikes and Duplicates. The QAPP also references the EPA National Functional Guidelines (NFGs) for the Contract Laboratory Program, for example, page 5-9, Section 5.2.2.2 Volatile Organic Compounds and uses EPA methods for the analysis of samples and associated QC samples. Because EPA Methods are being used to analyze samples and associated QC samples, all quality control requirements in the QAPP (Section 5.2.3) should contain the same criteria for evaluation, action, and qualification of data as in the EPA NFGs.	The QAPP references the documents and guidance that govern the preparation, format, and content of this planning document. The EWIs do specify that the data be validated in accordance with the National Functional Guidelines. However, the NFGs are guidelines and professional judgment is applied where the NFG and the selected method are not consistent. NFGs were developed as a validation structure for contractual compliance as much as for data quality. Strict application of the NFG for non-CLP methods is not always appropriate and practical. The QAPP defines the measures that will be used to assess the applicability of the data for the intended use, beginning with the NFG and considering the use of the specified methods.
SPECIFIC COMMENTS			
1.	Page 2-1, Section 2.0	Does not include a description of the nearest drinking water wells, potable aquifers, or residences in the vicinity of the Site 1. Please revise the Workplan to include a discussion of describing the nearest drinking water wells, potable aquifer and residences near Site 1.	The work plan text has been revised to include the information.

Document Title:

(1) Draft Work Plan, Phase II Remedial Investigation, IRP Site 1-Explosive Ordnance Disposal Range, Marine Corps Air Station, El Toro, California, September 2000

Reviewer: TechLaw, Inc. for U.S. EPA Region IX, Letter dated November 1, 2000

Comment No.	Section/ Page No.	Comment	Response
2.	Page 2-1, Section 2.2	TNT is a military explosive and is not normally used as a civilian/commercial explosive. Its use on the range is a given, in that most of the military ordnance listed in the previous sentence contain TNT or a mixture of TNT and other explosives. Please remove TNT from the description of civilian and commercial explosives used on the range.	TNT will be removed from the list of commercial explosives used on the site.
3.	Page 2-1, Section 2.3	Workplan should include a discussion of the volatile organic compounds (VOC) contamination previously identified at the MCAS El Toro boundary and in agricultural wells. Section 1.2 describes this contamination as the reason MCAS El Toro was placed on the National Priorities List (NPL). For clarity, please revise the Workplan to include a discussion and identify the locations where volatile organic compounds (VOCs) were identified at the boundary and in agricultural wells.	The Phase II RI Work Plan pertains exclusively to Site 1 and will only include information relevant to Site 1, other than general background and description of MCAS El Toro. The groundwater VOCs contamination and associated response actions are discussed in site specific documents.
4.	Page 2-2, Section 2.4.2	The first sentence states that "For reuse, the Navy is considering that Site 1 will continue to be used for EOD training activities by a federal agency." This statement does not conclusively state that the range will continue to be used for EOD training. No statement is provided as to what actions the Navy intends to take in the event the transfer for EOD reuse does not occur.	The current Community Reuse Plan identifies Site 1 to be transferred to the Department of Justice. Accordingly, CERCLA response actions will be based on this reuse scenario. If reuse changes, the CERCLA response actions will be reevaluated at that time.

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Comment No.	Section/ Page No.	Comment	Response
5.	Page 2-9, Section 2.5.2	The Workplan does not include a discussion of the placement of upgradient monitoring wells to provide background ground-water quality in the aquifer. Based on the well designation, it is assumed that monitoring well 18BGMW24 is considered to be a background well. This monitoring well appears to be inappropriate as a upgradient or background well because is downgradient of Site 1. An upgradient monitoring well should be located beyond the upgradient extent of potential contamination. Additionally, no well screening information is provided to ensure that the upgradient monitoring wells are screened in the same stratigraphic unit as the downgradient wells to ensure comparability of data. Additionally, there needs to be sufficient number of upgradient monitoring wells to account for heterogeneity in background groundwater quality. Please revise this section of the Workplan to discuss any possible upgradient monitoring well locations including rationale for the locations, screened interval and account for heterogeneity in background groundwater quality. Also, include a proposal for a sufficient number of upgradient monitoring wells in the appropriate section of the Field Sampling Plan.	Section 2.5.2 presents the hydrogeology of the site, as part of the site background and setting. It is not the intent of this section to discuss placement of monitoring wells, which belongs in the DQOs pertaining to the Sampling Design. Notwithstanding the relevance of the comment to this section, it should be noted that the descriptive designation 18BGMW24 refers to a background well for Site 18. The placement of any additional upgradient monitoring wells will be recommended (as per the tiered approach presented in the DQOs) if soil sampling results suggest that contamination extends to groundwater. Additionally, sampling of the existing monitoring well network will be conducted as part of Tier 1 activities (as per the tiered approach presented in the DQOs) to assess the need for additional wells to characterize the extent of impact and the appropriate location of background wells. The reviewer is also referred to the fact that as part of previous investigations conducted at Site 1, six wells are located within the EOD Range portion of Site 1, and 2 wells upgradient and 3 wells downgradient to the EOD Range.

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Comment No.	Section/ Page No.	Comment	Response
6.	Page 2-9, Section 2.5.2	The Workplan does not include a discussion of the placement of detection monitoring wells along the downgradient perimeter of Site 1. It is assumed based on the well designation that 01_DGMW57and 01_DGMW 58 are downgradient monitoring wells but no information or rationale is provided. The horizontal placement of these wells should be predicated on potential contaminant migration pathways. Please revise the plan to discuss the selection of existing downgradient monitoring wells including a discussion of the well screening information to ensure that the downgradient monitoring wells are screened in the same stratigraphic unit as the down gradient wells. Additionally, include a proposal for additional downgradient monitoring wells based on potential contaminant migration pathways.	Please refer to response to comment 5 in the context of the rationale and basis for the downgradient wells. The well mentioned in the comment were installed as part of the Phase I RI activities. In addition, the RI Workplan text has been revised to include sampling of the existing wells during Tier 1 activities. Data from this sampling event as well soil sampling results from the Tier 1 and 2 will be used to optimize the location of any additional wells (both downgradient and cross gradient).
7.	Page 2-9, Section 2.5.3	The Workplan does not include a discussion of actions which will be taken if special status species are encountered during field activities. If special status species are encountered at the Site, state and federal natural resource trustees should be notified, and the Navy should obtain permission from the appropriate natural resource trustee before fieldwork is commenced. Please revise the Workplan to describe how the Navy will respond if a special is observed at the Site.	As indicated in the Field Sampling Plan (Section 4.0), a habitat assessment is currently underway. Based on the findings of the habitat assessment, Section 7 consultation may be initiated with the U.S. Fish and Wildlife Service (USFWS). Adjacent sites at MCAS El Toro are currently under the purview of the USFWS and the agency is kept informed with respect to the progress of biological assessment activities at Site 1.
8.	Page 2-7, Figure 2-3	Shows 01-DGMW57 and 01-DGMW58 which are indicated to be separated between a suspected fault. If this is the case then wells selected to construct cross-section B-B' should be on the same side of this suspected fault (depending on the surface manifestation of the fault). However, wells 57 and 24 appear to be on the other side of this suspected fault and it may not be appropriate to include these two wells in cross -section B-B'. Please clarify the strike of this suspected fault and discuss whether or not the monitoring wells 57 and 24 included in cross-section B-B' are located on the opposite side of the fault from the other monitoring wells included in cross-section B-B'.	The fault will be shown in plan view on Figure 2-1. Based on the stratigraphic descriptions found in the boring logs, the contact with bedrock in well 01DGMW57 is approximately 35 feet below the bedrock contact in 01DGMW58. The estimation of the fault alignment and location with respect to wells 01DGMW57 and 18BGMW24 has been revised and presented in the work plan.

Document Title:

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Comment No.	Section/ Page No.	Comment	Response
9.	Page 2-10, Section 2.6.1	This section discusses two geophysical surveys that were conducted at Site 1 in 1991 and 1999. The analysis presented does not provide an analysis of the nature of the items indicated by the anomalies identified on the "northern half" of the site, nor does it mention those noted on the other portion of the site as shown on Figure 2-2. There is also no discussion of the conclusions reached as a result of the surveys, nor is any anomaly investigation or proposed remediation of potential UXO mentioned. Please revise this section to include a discussion of the results of the geophysical surveys, the conclusions reached, any anomaly investigations conducted or planned, and any UXO remediation proposed.	Geophysical surveys do not provide definitive conclusions as to the nature of the items present below the ground surface, if any. However, the anomalies serve as an indication to the potential presence of buried items. Tier 2 of the Phase II RI will investigate via trenching the areas of geophysical anomalies, as stated in Section 3.3.7.2. The results of the UXO sampling investigation will assess the need for UXO remediation.
10.	Page 2-10, Section 2.6.2.	This section states "None of the analytes exceeded applicable preliminary remediation goal (PRGs) or ecological screening criteria." However, neither the PRGs nor the ecological screening criteria are discussed nor is a summary table included in the Workplan. Please revise the text to include a discussion and summary table of the PRGs or the ecological screening criteria.	This statement is referenced from the Phase II RI Work Plan that was prepared in 1993 by Jacobs Engineering Group (JEG). The reference will be cited in this paragraph. The PRGs/ecological screening criteria referenced here pertain to those numerical values/criteria that were used at the time of development of the JEG Work Plan. This current work plan lists threshold levels in Tables 5-2 and 5-3; COPC concentrations detected during the Phase I RI do not exceed these threshold levels either.
11.	Page 2-10, section 2.6.2	Number 4 states that "Metals: 16 of 23 TAL metals were detected." However, the metals are not identified. Please revise the Workplan to identify the metals.	The summary of the metals analyses indicated that 16 of 23 TAL metals were detected, however at levels that were below concentrations detected at a background location. The sentence will be revised to reflect this information. Soil samples collected during this current investigation will be analyzed for the 23 Target Analyte List metals which are listed in Table 5-2; the 16 metals will be identified in section 2.6.2.

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Comment No.	Section/ Page No.	Comment	Response
12.	Page 2-11, Figure 2-4	No information is included in the text which indicates that groundwater elevations are known to the east of the Site 1 boundary, yet the groundwater elevation contours are drawn as solid lines. Since these contours appear to have been inferred they should be dashed. Please revise the figure to include dashed lines where groundwater elevation contours are inferred.	Contour lines, where inferred, will be revised to be dashed.
13.	Page 2-13, Section 2.6.2	Total Petroleum Hydrocarbons (TPH) concentrations are discussed in the section summarizing the Perchlorate Verification Study. It is not clear why a discussion of TPH is included in this section. For clarity, please revise the text to explain why TPH was analyzed as part of the Perchlorate Verification Study or move this statement to the appropriate section of the Workplan.	The primary intent of that investigation was perchlorate verification and is identified as such. However, this study, also included a preliminary soil sampling program as per an amendment to the original work plan to identify areas acceptable for transfer. Subsection 'Perchlorate Verification at Site 1' in Section 2.4 has been revised to clarify this.
14.	Page 2-15, Section 2.6.5	It is unclear why the background and downgradient wells listed in Table 2-3 were not sampled for perchlorate. Please provide an explanation for not sampling the background and downgradient wells for perchlorate. Also, the Navy may want to include a proposal to address this data gap in the Workplan.	Wells 01MW202 through 01MW207 were not installed at the time of first two sampling events. All wells listed in Table 2-3 were sampled during the 11/99 monitoring event, thereby addressing the data gaps.
15.	Page 3-1. Section 3.1.2	Surface water runoff should be considered as a likely pathway due to the size of the EOD range and its nearness to site boundaries. There is a potential for ordinance items that are ejected from disposal detonations or burns and that do not function (kickouts) to be present at the site. Additionally, no surface water sampling has been conducted to support the proposal that surface water run-off not be considered a likely pathway. Please revise the Workplan to consider surface water run-off as a pathway for human and ecological exposure or include a proposal for surface water sampling to support elimination of this pathway.	Surface water will be considered as a pathway during the preliminary risk evaluation (PRE) and if found to be potentially complete will be quantitatively addressed. The work plan has been revised accordingly.

Document Title:

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Comment No.	Section/ Page No.	Comment	Response
16.	Page 3-2, Section 3.1.3	The Workplan does not include a discussion of institutional controls. Please revise the text to include a discussion of institutional controls, if appropriate.	The appropriateness of institution controls is typically considered subsequent to completion of the investigation. However, language has been added to indicate that institutional controls will be considered after the investigation is completed.
17.	Page 3-2, Section 3.2	Does not include a discussion of any UXO, or radionuclide ARARs. For example, the Department of Defense explosives safety and siting criteria. Please include a discussion of any UXO or radionuclide specific ARARs or TBCs in the RI Workplan, if appropriate.	ARARs for UXO will be included in the UXO Evaluation Work Plan. Radionuclide ARARs will only be included if the base-wide evaluation indicates that uranium is not naturally occurring.
18.	Page 3-10, Section 3.3.1	The problem statement appears to ignore the environmental hazard posed by the presence of UXO on the site. If the UXO hazard is addressed elsewhere, it should be so stated. If the UXO hazard is not to be addressed, that should be stated and explained. Please revise this section to address the UXO hazard or to explain why it is not being considered in this plan.	Will be revised in accordance with response to comment 1.
19.	Page 3-10, Section 3.3.2	The RI Workplan does not include a decision statement to delineate the areal extent of existing groundwater contamination. Since groundwater contamination was identified in MW 57 and 58 and MW202. Please revise the text to include a decision statement related to defining the areal extent of contamination in groundwater.	It is unclear whether the reviewer by stating 'Decision Statement' is referring to 'Problem Statements' or 'Project Decisions', though the comment is directed to Section 3.3.2. Problem Statement 5 and Project Decision 4 address existing groundwater contamination. In the 'Decision Rules' section, the last paragraph of Rule 6 will be revised to indicate that results from groundwater sampling conducted as part of Tier 1and soil sampling results from Tier 1 and 2 will be used to optimize placement of additional wells required to confirm the lateral and downgradient extent of the perchlorate and any other constituents.

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20.	Page 3-12, Section 3.3.4	This paragraph states that "The scope of this study is intended to reflect measurable impacts from past uses of the site and will address the future planned uses of the site, based on the *current* understanding of those uses." This appears to assume that there will be no consideration of the impact if the site is not transferred to another federal agency (see Specific Comment 2 above). It also appears to indicate that all measurable impacts of prior site use will be included. That would obviously include the impact of the UXO that are currently located on the site. Since UXO are not currently addressed in this plan, please revise the plan to explain whether or not they will be addressed prior to transfer. If they are to be considered, please include the methodology in this plan.	"The scope of this study is intended to reflect measurable impacts from past uses of the site....."-this means that impacts caused by the EOD training activities will be characterized. "....and will address the future planned uses of the site based on the *current* understanding of those uses." Future planned use is the use of Site 1, upon its transfer to the Department of Justice based on the current understanding as per the Community Reuse Plan. If the current reuse scenario changes, the response action via the CERCLA process will accordingly be reevaluated. There is no assumption or presumption that there will be no consideration of the impact to the site if it is not transferred to the DOJ. To the contrary, the Phase II RI is proposing a comprehensive assessment without regard to the ultimate reuse. The response actions following this RI will take into account the reuse. The statement under question merely posits the objectives of the study in the context of a temporal boundary, and should not be misconstrued to speculate on the response actions under the CERCLA program. Please see response to general comment 1 regarding UXO issues.

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21.	Page 3-13, Figure 3-3	Does not include a question related to the representativeness of a sample. Please revise the decision process to include an evaluation of the representativeness of a sample.	Figure 3-3 is an illustration of a simplified decision rule process. Steps 3 and 5 imply evaluation of whether the sample is representative of the population sampled. Before determining whether a contaminant is present at the site, an evaluation of field and laboratory data quality will be performed with respect to precision, accuracy, representativeness and comparability. The data will be annotated appropriately.
22.	Page 3-18, Section 3.3.7.3	The existing Site groundwater monitoring well locations are not adequately explained. There is no discussion of upgradient or downgradient monitoring locations. Please revise the Field Sampling plan to propose upgradient and downgradient monitoring well locations which can evaluate, characterize and monitor groundwater contamination.	The existing monitoring wells were installed during earlier investigations discussed in Section 2.6.5. The logic and rationale for the tiered approach for the Phase II RI sampling has been discussed in the DQOs. Upgradient and downgradient wells will be installed based on the results of the Tier 1 and 2 (and possibly 3) soil and groundwater sampling. Radionuclides are being investigated separately and the results will be incorporated in the RI report.
23.	Page 4-1, Section 4.2.2	This section is entitled "Subsurface Clearance," but it appears that the clearance referenced is that related to the intrusive sampling and not a true subsurface clearance of the UXO located in Site 1. Please revise the title to read "Subsurface Clearance of UXO in Support of Sampling Activities" to better describe the activities being conducted.	UXO Sub-Surface Clearance activities will not be conducted under this Phase II RI as per the response to comment 1. Page 4-1 Section 4.2.2 will be titled: Intrusive Sampling Activities and the last paragraph will read: A qualified UXO Technician will oversee field activities that involve intrusive sampling, and will be conducted in accordance with the procedures provided in an Appendix to the Health and Safety Plan.

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24.	Page 4-2, Table 4-1	This table includes sampling and analysis for perchlorate and metals analysis, however, it does not include analysis for explosives. Explosives are expected to be present at the site. Please indicate why explosives analysis are not included in the sampling plan.	As indicated on page 3-18, Section 3.3.7.1, all samples collected will be analyzed for metals, general chemistry, perchlorate, explosives, VOCs, SVOCs, dioxins, furans, and petroleum hydrocarbons. Table 4-1 will be revised to reflect the specified analysis.
25.	Page 5-2, Section 5.1	The references for the quality assurance plan include U.S. Navy Environmental Work Instructions (EWI) for "Chemical Data Validation." However, since mostly Environmental Protection Agency (EPA) methods are being used for sample analysis the QAPP should include the EPA National Functional Guidelines (NFGs) for Contract Laboratory Program for Data Review as a reference for data evaluation. Please indicate why EWI's are being used to validate EPA methods.	The EWIs specify the use of the NFGs but also include clarifying guidance for the level of validation required for various projects. The EWI's are used at the direction of the Navy Quality Assurance Officer.
26.	Page 5-2, Section 5.1.1.3	The text states that "Data collected during field activities and pertinent previously reported data will be presented in an RI report." In order to make decisions about the site, all historical sample locations should be included with current locations on a map and corresponding data should be provided in tables.	As applicable to support decisions to be made at the site, historical data, including sampling locations will be included in the RI report.
27.	Page 5-2, Section 5.1.1.3	The text states that "project staff will review all laboratory reports..." Will a chemist review the data?	The project chemist shown in the organization chart will review all the laboratory reports.
28.	Page 5-6, Section 5.1.5	The text states that "The laboratory will provide level IV data packages..." Level IV data package is a reference to the EPA NFG's. If this guidance is being used, please reference it.	See response to comment 25.
29.	Page 5-9, Section 5.2.2.1	The text states that "No methods for analysis of perchlorate in soil have been published or proposed." Since there is no reference to a method for perchlorate analysis in soil, please provide the Standard Operating Procedure (SOP) that will be followed for this analysis as an Appendix to the QAPP.	A copy of the planned method for perchlorate in soil analysis will be included as an appendix.

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30.	Page 5-9, Section 5.2.2.4	The text states that "Extractable hydrocarbons will be evaluated for the approximate carbon range C10 through C 36, using extraction and gas chromatography." This carbon range indicates diesel and heavy oil, however, this is not stated in the text. Also, what methods are being used for extraction and analysis?	Table 5-2 specifies the method reference for both extraction and analysis methods.
31.	Page 5-16, Table 5-3	The heading for this page is "Table 5-2: Project Quality Control Criteria for Soil Samples," however, the table is a continuation of Table 5-3: Project Quality Control Criteria for Groundwater Samples. Please indicate that the table is a continuation of Table 5-3.	The heading will be corrected.
32.	Page 5-20, Section 5.2.3	In the reporting limits section, the text states that "the detection limit will be addressed as a factor of uncertainty associated with the decision-making process." Since analytical method detection limits are provided by laboratories prior to sample analysis, why are detection limits uncertain?	Laboratory detection limits are subject to matrix interferences. If the laboratory elevates a detection limit above the decision threshold, an element of decision uncertainty is present.
33.	Page 5-20, Section 5.2.3	The Laboratory Control Samples (LCS) section states that "The LCS will consist of a method blank spiked with a known amount of analyte..." The text does not specify which analytes will be included in the spike. The text should be modified to state that, the LCS will consist of a method blank spiked with a known amount of all target analytes for each method, in addition to required surrogates for that method.	The Navy IRCDQM (Appendix C, Enclosure 1, Appendix D.1.1 b) 4)) provides direction on the content of LCSs. In summary, except when the list of target analytes exceeds 50 or when there are cross compound interferences, all analytes are included in the LCS.
34.	Page 5-20, Section 5.2.3	The Laboratory Control Samples section states that "The LCS source will be different from that used to prepare calibration standards." This statement does not indicate the source or quality of the standards to be used for the LCS (if that is what they mean by 'the LCS source). The source and quality of standards should be included in the text for all applicable standards.	The referenced guidance (NFESC 1999) specifies that standards shall be traceable to certified materials. It is impractical to specify in this document the specific source of a standard or a control sample but the information is part of the laboratory reporting package.
35.	Page 5-21, Section 5.2.4	The QAPP did not include criteria for initial or continuing calibration criteria for laboratory instruments. Continuing calibration percent difference from initial calibration indicates if the instrument is functioning and corresponding data is defensible. See the EPA NFGs for initial and continuing calibration criteria and include them in the QAPP.	The NFGs, referenced in the EWIs, will be used to validate the data.

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36.	Page 6-1, Section 6.1.1	The text should define what is meant by the terms "maximum" and "RME" concentrations. It is not clear from the text how a PRE will be conducted using PRGs/SSLs. Although EPA Region 9 does publish SSLs, these values are for protection of groundwater only and are not appropriate for calculating risk and hazard. The text in this section should be modified to more clearly present how Region 9 PRGs will be used to conduct a PRE, and should also clarify how SSLs will be used in conjunction with PRGs.	The work plan references the Navy protocol that more specifically defines the approach that will be used to determine risk and hazard. This document also defines the terms maximum and RME concentrations in the same manner that they are defined in USEPA's Risk Assessment Guidance for Superfund (USEPA 1986). Text has been added to clarify how the PRGs and the SSLs will be used.
37.	Page 6-1, Section 6.1.1	MCLs are not appropriate for use in conducting a PRE. If contaminants are detected in groundwater, then they should be compared to tap water PRGs when calculating risk and hazard. The text should also note that the California EPA publishes its own list of MCLs, which, unlike PRGs, are enforceable promulgated standards. The term Cal-modified MCLs is misleading and they should be referred to as California MCLs, if at all. Please correct the text to reflect these changes.	MCLs are used as benchmarks to help identify the need for remedial action and are appropriate, when used in the proper context, for the PRE. As a matter of course, and under the Navy Protocol, exposure point concentrations are by default compared to the EPA Region 9 tap water PRGs so that cancer risk or non-cancer hazard can be calculated. The text has been clarified accordingly. The term Cal-modified MCLs has been changed to California MCLs.
38.	Page 6-1, Section 6.1.1	The text states that "if residential soil PRGs are exceeded, contaminant concentrations will be compared to industrial PRGs." Residential and industrial PRGs are calculated to provide screening criteria based on specific land uses and incorporate receptor-specific exposure assumptions. It is not appropriate to "mix and match" PRGs based on different receptors as contaminant concentrations exceed the more restrictive residential values. For clarity, please revise the text to explain the rationale for this procedure.	As a matter of course, the Navy Protocol indicates that "all exposure point concentration data" will be compared to the residential and industrial PRGs in order that the applicability of each land use type can be evaluated by the Navy and the intended property transferee. We do not intend on "mixing and matching" residential and industrial PRGs as that would certainly confound risk management decisions subsequent to completion of the investigation and risk assessment. The text has been clarified.

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39.	Page 6-1, Section 6.1.2	The text in the first paragraph states that to derive "more realistic levels of risk," the site-specific PRE will "include those pathways that may differ from the from the standard exposure pathways used to calculate Region 9 PRGs/SSLs." Region 9 PRGs account for ingestion, inhalation of volatiles and particulates, and dermal absorption. Please revise the text to clarify "those pathways" that will be evaluated in the site-specific PRE that are not accounted for in the Region 9 PRGs.	The EPA Region 9 PRGs/SSLs are predicated on default exposure assumptions that help evaluate soil, groundwater, and air pathways under defined exposure route assumptions. They have not, however, been developed to address the "universe of exposure pathways" (e.g., surface water) or changes in exposure factors that may account for departures from the default exposure route assumptions (e.g., utility worker dermal contact with impacted groundwater, etc.). At a minimum, all the pathways that are assumed in the development of the Region 9 PRGs will be evaluated. Subsequent to the evaluation of the data, the need for the evaluation of additional pathways will be noted in the PRE.
40.	Page 6-1, Section 6.1.2	The text in this section states that "for chemicals that are both site-related and associated with excess risk, the site-specific PRE will first include only organic contaminants of potential concern (COPCs) with maximum detected concentrations greater than medium-specific SSLs/PRGs." Unless it can be demonstrated that chemical-specific risks are so low as to have no contribution to the total risk and hazard, there is no benefit or justifiable rationale for excluding detected contaminants as COPCs. In addition, as there are apparently exposure pathways to be evaluated in the site-specific PRE that have not been evaluated in the screening PRE, the importance of quantitatively evaluating all detected contaminants is even more apparent. Please modify the work plan to include all detected organic contaminants in the site-specific PRE.	All detected chemicals will be evaluated in the site specific PRE. The work plan has been revised accordingly.
41.	Page 6-1, Section 6.1.2	The process for evaluating metals in the site-specific PRE is unclear. The text on p. 6-2 states that "inorganic concentrations, i.e., metals, will be compared against background concentrations to determine ambient concentrations." Provide a description of what is meant by the term "ambient concentrations" in the Workplan.	Concentrations of inorganic chemicals will be compared to background concentrations to determine if the inorganic chemicals are indeed related to the site or are naturally occurring. The text has been modified accordingly.

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42.	Page 6-1, Section 6.1.2	The Workplan states that metals with concentrations below background levels will be flagged but included in the evaluation of risk as COPCs. However, the process outlined in Figure 6-2 appears to eliminate inorganic COPCs that do not exceed background. While this procedure is acceptable, the discrepancy between the text on p. 6-2 and Fig. 6-2 should be corrected.	The text discussion is correct as noted. The figure has been revised to agree with the text.
43.	Page 6-2, Section 6.1.2	States that "if the data indicate that excess risk is associated with background metals, additional background investigation may be required." It is not clear what is meant by this statement. According to the text in Section 3.3.3, background levels for metals in soil at MCAS El Toro were developed and presented in the *Final Technical Memorandum, Background and Reference Levels, Remedial Investigations*. Is the Navy proposing the establishment of new background concentrations if the established and accepted background concentrations pose an "excess risk"? Please revise the work plan to clarify the objectives of any "additional background investigation".	Most recently, Earth Tech has worked with the Navy and USEPA to develop methodology to establish statistically derived levels for naturally occurring elements. While we prefer not to expend additional resources to utilize this method, we would like to leave the option open for additional background evaluation using the newer methodology contingent upon review of data. The text has been revised to clarify this point and the method has been cited.
44.	Page 6-1, Section 6.1.2	The third paragraph of this section is confusing. The second sentence appears out of place and is rendered moot by the fourth sentence. The third sentence states that "contaminants with RME exposure concentrations exceeding SSLs/PRGs will be compared to available background data." Please clarify what background data will be used for this comparison. It is not clear why the text in the fourth sentence specifically states that a site-specific PRE for construction workers would be prepared using acceptable toxicity values. As written, the text implies that toxicity values for a site-specific PRE for construction workers may not be consistent with those used for the site-specific PREs conducted for future industrial workers and current/future agricultural workers. For clarity, this section should be rewritten to ensure a consistent approach for all receptors.	This section has been re-written to clarify the site-specific PRE approach.

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45.	Page 6-1, Section 6.1.2	The text in the third and fourth paragraphs refer to performing a "baseline risk assessment" if the risks calculated in the PREs is "unacceptable" or exceed 10^{-4}. Unless remedial actions have already occurred, then the PREs are already "baseline" risks and the definition needs to be refined accordingly. In addition, the term "reasonable maximum exposure (RME)" has been used in Sections 6.1.1 and 6.1.2 and on Figures 6-1 and 6-2 to describe the process used in the PREs. EPA defines the term RME as a high-end estimate intended to be above the 90^{th} percentile of the actual distribution, but within the range of possible exposures while avoiding bounding, or worst-case scenarios that are purposefully beyond the true distribution and overestimate the exposure in the actual population, and this value represents the basis for EPA's risk management decisions. Hence, it is unclear how additional levels of risk assessment can or cannot refine the risk estimates to "acceptable levels," particularly *a priori*. Please revise the Workplan to reflect that RME risk estimates represent the benchmark for determining whether remedial actions are necessary for the protection of human health.	The text has been revised.
46.	Page 6-5, Figure 6-2	The text in several of the boxes in this figure refer to modifying toxicity values or a "realistic toxicity evaluation." Toxicity values for risk assessments are typically obtained from IRIS or other EPA sources. Values obtained from IRIS are peer reviewed, and thus are generally not open for further discussion. Please revise the Workplan to either clarify what is meant by further refining toxicity values, or should delete such references from the decision tree.	Toxicity values will not be modified. The work plan has been revised accordingly.
47.	Page 6-5, Figure 6-2	The final decision point in the decision tree refers to acceptable RME risks as $<10^{-4}$. EPA generally defines "acceptable" risk as $<10^{-6}$, and strives to make decisions regarding the need for remedial actions at sites where the cumulative risk exceeds 10^{-6} on a case by case basis. Hence, the text in the decision tree should be modified to better conform to EPA risk management policy.	As implied, it has been Navy's experience that the peculiarities of most sites ensure that risk management decisions, especially in case where risk is greater than 10-6 but less than 10-4, do occur on a case by case basis and that the 10-6 level is actually a point of departure for evaluation rather than a "brightline" requiring remediation. The text has been revised accordingly.